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EXAMINER

NGUYEN, KIET TUAN

ART UNIT

PAPER NUMBER

2881

DATE MAILED: 03/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/502,534

Applicant(s)

Meisburger et al.

Examiner

U. NGUYEN

Group Art Unit

2881

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- ☒ Responsive to communication(s) filed on 03-18-02
- ☒ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- ☒ Claim(s) 1-30, 33-55 and 59-62 is/are pending in the application.
- ☐ Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- ☒ Claim(s) 1-30, 33-55 and 59-62 is/are rejected.
- ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- ☐ Claim(s) \_\_\_\_\_ are subject to restriction or election requirement

## Application Papers

- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some\* ☐ None of the:
  - ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s) 13
- ☐ Interview Summary, PTO-413
- ☐ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Other \_\_\_\_\_

Office Action Summary

- 1) The reissue oath/declaration filed with this application is defective because it fails to identify at least one error which is relied upon to support the reissue application. See 37 CFR 1.175(a)(1) and MPEP § 1414.
- 2) Claims 1-62 are rejected as being based upon a defective reissue declaration under 35 U.S.C. 251 as set forth above. See 37 CFR 1.175.

The nature of the defect(s) in the declaration is set forth in the discussion above in this Office action.

***Objected Drawings***

- 3) The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, a second electron beam exposing to the substrate by an electric field as recited in claims 9 and 16; and the resulting multiple feature images are exactly aligned and can be overlaid precisely and means for averaging the multiple image features to maximize signal contrast in the image of the pattern feature as recited in claims 49 and 59 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

- 4) ***Rejection Under 35 U.S.C. 112, First Paragraph***

Claims 37-39, 42-55 and 59-62 are rejected under 35 U.S.C. 112, first paragraph, as

containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification is completely silent for description of "an electron source ... per steridian" as recited in claim 37; "an electron detector to detect non-reflected electrons" as recited in claims 42 and 55; "the resulting multiple feature images ... overlaid precisely" and "averaging the multiple image features ... the image of the pattern feature" as recited in claims 49 and 59; "an image of a pattern feature produced by averaging between 2 to 256 inclusive repeated frames" as recited in claim 51; "a frame size varied in the range of 512 to 4096 pixels tall by 4 to 4096 wide" as recited in claim 52; and "high energy and low energy electron beams provided from an electron source" as recited in claim 55. Therefore, the examiner don't understand how is the electron beam with an irradiance of greater than 1 milli-amp per steridian? What are the non-reflected electrons? How is a single electron detector that detects the non-reflected electrons which include secondary, backscatter and transmission electrons? How are the alignment measurements used to align the images and the information from the database? How are the resulting multiple feature images exactly aligned and overlaid precisely? How are the averaging the multiple image features to maximize signal contrast in the image of the pattern feature? and how is the single electron source that provides both high and low energy electron beams?

Clarification without the introduction of new matter is required.

5)

*Rejection Under 35 U.S.C. 102(b)*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 9-15, 17-22, 26-28 and 30 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Grobman (4,453,086).

Claims 9-22 and 26-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Miyoshi et al. (4,912,052). (See the reasons as indicated in the previous office action dated October 17, 2001 in Paper No. 9).

Claims 42, 45-50, 53-55 and 59-61 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka (4,996,434). (See the reasons as indicated in the previous office action dated October 17, 2001 in Paper No. 9).

6) *Rejection Under 35 U.S.C. 103(a)*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to

the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyoshi et al. in view of Tanaka (4,996,434). (See the reasons as indicated in the previous office action dated October 17, 2001 in Paper No. 9).

Claims 33-41, 43-44, 51-52 and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka (4,996,434). (See the reasons as indicated in the previous office action dated October 17, 2001 in Paper No. 9).

7) Claims 1-8 are allowed. (See the reasons as indicated in the previous office action dated October 17, 2001 in Paper No. 9).

8) Applicant's arguments filed on March 18, 2002 have been fully considered but they are not persuasive.

**A) Applicant argued that:**

- 1) The error as "My intent ... of record" indicated in the oath/declaration is a proper.
- 2) The limitation "an electron source ... per steridian" as recited in claim 37 is supported in col. 8, lines 25-56; col. 8, line 57 to col. 14, line 14; and col. 11, lines 19-37.
- 3) The limitations "the resulting multiple feature images ... overlaid precisely" and "averaging the multiple image features ... the image of the pattern feature" as recited in claims 49



and 59 are supported in col. 6, line 32 to col. 7, line 67 and col. 17, lines 26-37; and figs. 3a-3d and 11.

4) The limitations "an image of a pattern feature produced by averaging between 2 to 256 inclusive repeated frames" as recited in claim 51 and "a frame size varied in the range of 512 to 4096 pixels tall by 4 to 4096 wide" as recited in claim 52 are supported in col. 6, line 32 to col. 8 line 24 and figs. 3b-3d.

5) The limitation "high energy and low energy electron beams provided from an electron source" as recited in claim 55 is supported in col. 12, lines 16-19 and fig. 4.

6) Grobman states that "low energy beam would cause counteracting positive charging due to excessive emission of secondary electrons". It is the Applicants understanding that a high energy beam, as apposed to a low energy beam, will generate positive charging by the production of secondary electrons.

7) Miyoshi et al. does not disclose a method for minimizing the charging on the substrate.

8) Tanaka does not disclose non-reflected electrons which include secondary, backscatter, and transmission electrons.

9) Tanaka does not disclose die-to-die comparing.

**B) This argument is not persuasive because:**

1) The error in the oath/declaration does not identify any specific error in the patent and thus is insufficient to satisfy the requirement of the Rule.

2) Col. 8, lines 25-56; col. 8, line 57 to col. 14, line 14; and col. 11, lines 19-37 are completely silent for representing the limitation “an electron source ... per steridian” as recited in claim 37.

3) Col. 6, line 32 to col. 7, line 67; and col. 17, lines 26-37 are also completely silent for representing the limitations “the resulting multiple feature images ... overlaid precisely” and “averaging the multiple image features ... the image of the pattern feature” as recited in claims 49 and 59; and figs. 3a-3d and 11 do not show the limitations “the resulting multiple feature images are exactly aligned and can be overlaid precisely” and means for averaging the multiple image features to maximize signal contrast in the image of the pattern feature” as recited in claim 49 and 59.

4) Col. 6, line 32 to col. 8 line 24 and figs. 3b-3d are also completely silent for representing the limitations “an image of a pattern feature produced by averaging between 2 to 256 inclusive repeated frames” as recited in claim 51 and “a frame size varied in the range of 512 to 4096 pixels tall by 4 to 4096 wide” as recited in claim 52.

5) Col. 12, lines 16-19 and fig. 4 are also completely silent for representing the limitation “high energy and low energy electron beams provided from an electron source” as recited in claim 55.

6) Grobman discloses a method and apparatus using a low energy electron beam for reducing on a mask charge buildup created by applying a high energy electron beam (see col. 2, lines 29-54).



7) As stated in the previous office action, Miyoshi et al. disclose a method and apparatus for testing semiconductor elements, which includes the grid electrodes 31 and 32 controlling the secondary electrons 22 and 23 back to the target 11 to keep at the surface of the target 11 the constant voltage which is called the equilibrium condition (see col. 2, lines 1-3; col. 3, lines 28-30; col. 4, lines 1-51; col. 5, lines 8-28; col. 6, lines 26-35; col. 7, lines 16-38 and 52-59; and figs. 1-2 and 5).

8) As stated in the *Rejection Under 35 U.S.C. 112, First Paragraph* above, the specification is completely silent for representing “non-reflected electrons which include secondary, backscatter, and transmission electrons”. Further, Claims 37-39, 42-55 and 59-62, as the best understood by the meaning of 112, first paragraph, are rejected under 35 U.S.C. 102(b) as being anticipated and 103(a) as being unpatentable by and over Tanaka, respectively.

9) Tanaka disclose a die-to-die comparing type (see col. 1, lines 44-64). Tanaka also states that it has “a critical disadvantage in that, if any defect is contained in two video signals which are coincident with each other, it is impossible to detect such a defect”. This statement indicates that the die-to-die comparing type used to compare the defects of two images in which are not coincident with each other.

9) **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner *Kiet T. Nguyen* whose telephone number is (703) 308-4855.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9319.

*K.T.N/Primary*  
March 24, 2003

  
KIET T. NGUYEN  
PRIMARY EXAMINER